MATH 248 FALL 2017 – LABORATORY ASSIGNMENT 5 – Sochacki
DUE: Tuesday November 7, 2017
POINTS: 50

You are to write a Matlab script that will solve an arbitrary tri-diagonal matrix system of equations using Gaussian elimination. Your program should determine if a unique solution exists and if it does give an approximation to this unique solution. You MUST use the computer with formatted output with a nice layout.

Guidelines:

(1) First you should do a neat one-three page (8.5 x 11) write up showing how to solve a tri-diagonal system of equations. Also give an operation count for each type of calculation required to determine the solution.

(2) Your program should print the answer as columns in a nice format.

(3) You should make sure your code can minimize round-off errors and the number of calculations.

(4) As usual, the commenting of your scripts and write up is part of your evaluation.

(5) You can do the following bonus problems for 2 points each.
    (i) Give the determinant of the matrix defining the SLE
    (ii) Give the inverse of the matrix defining the SLE

Your matlab codes should have variable names that are descriptive. Your coding should be top down and efficient. Make sure the number of calculations is minimized. Your input and output should be well labeled with easy to read instructions. Your turn in should be neat and professional.